

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application. Please cancel claim 1 without prejudice and amend claims 2, 4-5, 9, 13-15 and 17-19 as follows:

LISTING OF CLAIMS:

1. (Canceled)
2. (Currently Amended) A heat dissipation device ~~as in claim 1, wherein:~~
for dissipating heat produced by:
at least one electronic component of an electronic control device, which
electronic control device comprises;
a circuit board having the at least one electronic component
mounted thereon; and
a protective case made of resin and defining an interior
environment; and
an actuator block made of metal and mounted outside of the
protective case; and
wherein the protective case substantially confines the circuit board within the
interior environment; and
wherein a heat conduction path is arranged and constructed to conduct the
heat generated by the electronic component from the interior environment formed by
the protective case to the actuator block.

wherein the heat conduction path includes a first heat conductive member and a plurality of second heat conductive member members,

wherein the first heat conductive member is disposed within the interior environment of the protective case, so that the heat of the electronic component is conducted to the first heat conductive member, [and]

wherein the second heat conductive ~~member extends~~ members extend from the interior environment to communicate with the environment outside of the protective case, and

wherein each of the second heat conductive' members has a first end contacting the first heat conductive member and a second end contacting the actuator block, so that the conduction of heat between the first heat conductive member and the actuator block is made at plural positions.

3. (Original) A heat dissipating device as in claim 2, wherein at least one of the first and second heat conductive members are made of metal having good thermal heat conductivity properties.

4. (Currently Amended) A heat dissipation device ~~as in claim 3, for~~ dissipating heat produced by:

at least one electronic component of an electronic control device, which electronic control device comprises:

a circuit board having the at least one electronic component mounted thereon; and

a protective case made of resin and defining an interior environment; and

an actuator block made of metal and mounted outside of the protective case; and

wherein the protective case substantially confines the circuit board within the interior environment; and

wherein a heat conduction path is arranged and constructed to conduct the heat generated by the electronic component from the interior environment formed by the protective case to the actuator block,

wherein the heat conduction path includes a first heat conductive member and a second heat conductive member,

wherein the first heat conductive member is disposed within the interior environment of the protective case, so that the heat of the electronic component is conducted to the first heat conductive member,

wherein the second heat conductive member extends from the interior environment to communicate with the environment outside of the protective case and has a first end contacting the first heat conductive member and a second end contacting the actuator block,

wherein the second heat conductive member comprises at least one bolt that is made of metal having good thermal heat conductivity and is adapted to fix the actuator block in position relative to the protective case, and

wherein the bolt has a head engaging with a part of the first heat conductive member and a shank threadably engaging with the actuator block.

5. (Currently Amended) A heat dissipation device ~~as in claim 4~~, for dissipating heat produced by:

at least one electronic component of an electronic control device, which electronic control device comprises:

a circuit board having the at least one electronic component mounted thereon; and

a protective case made of resin and defining an interior environment; and

an actuator block made of metal and mounted outside of the protective case; and

wherein the protective case substantially confines the circuit board within the interior environment;

wherein a heat conduction path is arranged and constructed to conduct the heat generated by the electronic component from the interior environment formed by the protective case to the actuator block;

wherein the heat conduction path includes a first heat conductive member and a second heat conductive member,

wherein the first heat conductive member is disposed within the interior environment of the protective case, so that the heat of the electronic component is conducted to the first heat conductive member,

wherein the second heat conductive member extends from the interior environment to communicate with the environment outside of the protective case and has a first end contacting the first heat conductive member and a second end contacting the actuator block;

wherein at least one of the first and second heat conductive members are made of metal having good thermal heat conductivity properties;

wherein the second heat conductive member comprises at least one bolt that is adapted to fix the actuator block in position relative to the protective case;
and

wherein the first heat conductive member includes a sleeve arranged and constructed to receive the bolt and extending from the interior of the protective case toward the actuator block.

6. (Original) A heat dissipation device as in claim 5, wherein the sleeve of the first heat conductive member has one end contacting the actuator block.

7. (Original) A heat dissipating device as in claim 6, wherein at least one of the first and second heat conductive members are made of aluminum alloy.

8. (Original) A heat dissipating device as in claim 3, wherein at least one of the first and second heat conductive members are made of aluminum alloy.

9. (Currently Amended) A heat dissipating device ~~as in claim 3, for~~
dissipating heat produced by:

at least one electronic component of an electronic control device, which electronic control device comprises;

a circuit board having the at least one electronic component mounted thereon; and

a protective case made of resin and defining an interior environment; and

an actuator block made of metal and mounted outside of the protective case; and

wherein the protective case substantially confines the circuit board within the interior environment; and

wherein a heat conduction path is arranged and constructed to conduct the heat generated by the electronic component from the interior environment formed by the protective case to the actuator block,

wherein the heat conduction path includes a first heat conductive member and a second heat conductive member,

wherein the first heat conductive member is disposed within the interior environment of the protective case, so that the heat of the electronic component is conducted to the first heat conductive member,

wherein the second heat conductive member extends from the interior environment to communicate with the environment outside of the protective case and has a first end contacting the first heat conductive member and a second end contacting the actuator block,

wherein at least one of the first and second heat conductive members are made of metal having good thermal heat conductivity properties, and

wherein the protective case includes a tubular extension that extends from the protective case toward the actuator block, and the tubular extension is arranged and constructed to receive a bolt.

10. (Original) A heat dissipating device as in claim 9, wherein the tubular extension is arranged and constructed to receive the bolt together with the sleeve of the first heat conductive member.

11. (Original) A heat dissipating device as in claim 3, further including an electrical insulation member disposed between the electronic component and the first heat conductive member.

12. (Original) A heat dissipating device as in claim 3, wherein the first heat conductive member is joined to the protective case by an insert molding process.

13. (Currently Amended) A heat dissipation device for dissipating heat produced by:

at least one electronic component of an electronic control device, which electronic control device comprises;

a circuit board having the at least one electronic component mounted thereon; and

a protective case made of resin and defining an interior environment; and

an actuator block made of metal and mounted outside of the protective case; and

wherein the protective case substantially confines the circuit board within the interior environment; and

a heat conduction path includes a first heat conductive member and a plurality of second heat conductive member members; and

wherein the first heat conductive member is disposed within the interior environment of the protective case, so that the heat of the electronic component is conducted to the first heat conductive member; and

wherein the second heat conductive ~~member extends~~ members extend from the interior environment to communicate with the environment outside of the protective case, and

wherein each of the second heat conductive members has a first end contacting the first heat conductive member and a second end contacting the actuator block, so that the conduction of heat between the first heat conductive member and the actuator block is made at plural positions.

and

wherein ~~both of~~ the first and second heat conductive members are made of metal having good thermal heat conductivity properties; and

wherein an electrical insulation member is disposed between the electronic component and the first heat conductive member.

14. (Currently Amended) A heat dissipation device as in claim 13, wherein the second heat conductive ~~member comprises at least one bolt that is~~ members comprise bolts that are adapted to fix the actuator block in position relative to the protective case.

15. (Currently Amended) A heat dissipation device ~~as in claim 14~~ for dissipating heat produced by:

at least one electronic component of an electronic control device, which electronic control device comprises;

a circuit board having the at least one electronic component mounted thereon; and

a protective case made of resin and defining an interior environment;

and

an actuator block made of metal and mounted outside of the protective case; and

wherein the protective case substantially confines the circuit board within the interior environment; and

a heat conduction path includes a first heat conductive member and a second heat conductive member; and

wherein the first heat conductive member is disposed within the interior environment of the protective case, so that the heat of the electronic component is conducted to the first heat conductive member; and

wherein the second heat conductive member extends from the interior environment to communicate with the environment outside of the protective case and has a first end contacting the first heat conductive member and a second end contacting the actuator block; and

wherein both of the first and second heat conductive members are made of metal having good thermal heat conductivity properties;

wherein an electrical insulation member is disposed between the electronic component and the first heat conductive member;

wherein the second heat conductive member comprises at least one bolt that is adapted to fix the actuator block in position relative to the protective case; and

wherein the first heat conductive member includes a sleeve arranged and constructed to receive the bolt and extending from the interior of the protective case toward the actuator block.

16. (Original) A heat dissipation device as in claim 15, wherein the sleeve of the first heat conductive member has one end contacting the actuator block.

17. (Currently Amended) An electronic control device comprising;
at least one heat generating electronic component; and
a circuit board having at least one electronic component mounted thereon;
and
a protective case made of resin and defining an interior environment; and
an actuator block made of metal and mounted outside of the protective case;
wherein the protective case substantially confines the circuit board within the interior environment; and
a heat dissipating device comprising a heat conduction path, wherein the heat conduction path includes a first heat conductive member and a plurality of second heat conductive ~~member~~ members; and

wherein the first heat conductive member is disposed within the interior environment of the protective case, so that the heat of the electronic component is conducted to the first heat conductive member; and

wherein the second heat conductive ~~member extends~~ members extend from the interior environment to communicate with the environment outside of the protective case, [and]

wherein each of the second conductive members has a first end contacting the first heat conductive member and a second end contacting the actuator block so that the conduction of heat between the first heat conductive member and the actuator block is made at plural positions; and

wherein at least one of the first and second heat conductive members are made of metal having good thermal heat conductivity properties.

18. (Currently Amended) An electronic control device as in claim 17, wherein the second heat conductive ~~member comprises at least one bolt that is~~ members comprise bolts that are adapted to fix the actuator block in position relative to the protective case.

19. (Currently Amended) An electronic control device ~~as in claim 18,~~ comprising;
at least one heat generating electronic component; and
a circuit board having at least one electronic component mounted thereon;
and
a protective case made of resin and defining an interior environment; and

an actuator block made of metal and mounted outside of the protective case;
wherein the protective case substantially confines the circuit board within the interior
environment; and

a heat dissipating device comprising a heat conduction path, wherein the heat
conduction path includes a first heat conductive member and a second heat
conductive member; and

wherein the first heat conductive member is disposed within the interior
environment of the protective case, so that the heat of the electronic component is
conducted to the first heat conductive member; and

wherein the second heat conductive member extends from the interior
environment to communicate with the environment outside of the protective case and
has a first end contacting the first heat conductive member and a second end
contacting the actuator block; and

wherein at least one of the first and second heat conductive members are
made of metal having good thermal heat conductivity properties; and

wherein the second heat conductive member comprises at least one bolt that
is adapted to fix the actuator block in position relative to the protective case; and

wherein the first heat conductive member includes a sleeve arranged
and constructed to receive the bolt and extending from the interior of the protective
case toward the actuator block.

20. (Original) An electronic control device as in claim 19, wherein the
sleeve of the first heat conductive member has one end contacting the actuator
block.